(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 3 March 2005 (03.03.2005)

PCT

(10) International Publication Number WO 2005/018637 A1

(51) International Patent Classification⁷: A61K 31/407, C07D 495/04, A61P 3/12

(21) International Application Number:

PCT/GB2004/003546

(22) International Filing Date: 18 August 2004 (18.08.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 0319759.7

22 August 2003 (22.08.2003) GB

- (71) Applicant (for AE, AG, AL, AM, AT, AU, AZ, BA, BB, BE, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CY, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, SZ, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW only): ASTRAZENECA AB [SE/SE]; Sodertalje, S-SE-151 85 (SE).
- (71) Applicant (for MG only): ASTRAZENECA UK LIM-ITED [GB/GB]; 15 Stanhope Gate, London Greater London W1K 1LN (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BENNETT, Stuart, Norman, Lile [GB/GB]; AstraZeneca R & D Alderley, Alderley Park, Macclesfield Cheshire SK10 4TG (GB). SIMPSON, Iain [GB/GB]; AstraZeneca R & D Alderley,

Alderley Park, Macclesfield Cheshire SK10 4TG (GB). WHITTAMORE, Paul, Robert, Owen [GB/GB]; AstraZeneca R & D Alderley, Alderley Park, Macclesfield Cheshire SK10 4TG (GB).

- (74) Agent: ASTRAZENECA; Global Intellectual Property, S-SE-151 85 Sodertalje (SE).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HETEROCYCLIC AMIDE DERIVATIVES WHICH POSSESS GLYCOGEN PHOSPHORYLASE INHIBITORY ACTIVITY

$$R^4$$
 R^5
 R^2
 R^3
 R^3
 R^3
 R^5
 R^7
 R^7
 R^7
 R^7
 R^7
 R^7
 R^7
 R^7
 R^7

(57) Abstract: A compound of the formula (1) or a pharmaceutically-acceptable salt, or pro-drug thereof; (1) wherein, for example: R⁴ and R⁵ together are either -S-C(R⁶=C(R⁷)- or -C(R⁷)=C(R⁶)-S-; R⁶ and R⁷ are independently selected from hydrogen and halo; A is phenylene or heteroarylene; n is 0, 1 or 2; R¹ is halo, cyano or carboxy; R² is for example methyl; R³ is for example selected from halo(1-4C)alkyl, dihalo(1-4C)alkyl, trifluoromethyl, hydroxy(1-4C)alkyl, dihydroxy(2-4C)alkyl, trihydroxy(3-4C)alkyl, cyano(1-4C)alkyl (optionally substituted on alkyl with hydroxy), (1-4C)alkoxy(1-4C)alkyl, (1-4C)alkoxy(1-4C)alkoxy(1-4C)alkyl, di[(1-4C)alkoxy](1-4C)alkyl, (hydroxy)[(1-4C)alkoxy](1-4C)alkyl; possess glycogen phosphorylase inhibitory activity and accordingly have value in the treatment of disease states associated with increased glycogen phosphorylase activity. Processes for the manufacture of compounds and pharmaceutical compositions containing them are described.

